

## 2002 VIRGINIA COASTAL RESOURCES MANAGEMENT PROGRAM GRANT

**Project Title:**

Aquaculture, Shorebird Prey & Water Quality

**Task #:** 12.02

### I. Legal Applicant:

**Name:** Mark Luckenbach

**Organization:** Virginia Institute of Marine Science

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First Middle Last

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### II. Project Details:

A. **Geographic Area of Impact:** Seaside of Virginia's Eastern Shore

B. **Congressional District(s):** Virginia's 1<sup>st</sup> Congressional District

C. **Classification:** SPECIFIC ISSUES-AREA OF PARTICULAR CONCERN  
(If Classification is OTHER, please describe):

D. **Start Date:** 1 / 01 / 2003 **End Date:** 12 / 30 / 2003  
MM/DD/YYYY MM/DD/YYYY

☐ Project is continuing from previous year

### III. Project Summary:

*(2000 Character Limit)* Rapid growth of hard clam aquaculture in the coastal bays over the past decade has lead to a number of real and perceived user conflicts. In an effort to support the development of aquaculture practices and management options that reduce these conflicts and support environmentally-sound, sustainable aquaculture in the coastal bays, we will develop best management practice (BMP) guidelines for the industry. Working together with the industry and with other user groups, we will identify those aquaculture practices which raise environmental or sociological concerns. We will document the spatial occurrence of these practices and we will identify solutions.

Current hard clam aquaculture practices include the extensive use of plastic mesh netting for predator exclusion. In Virginia's coastal bays the grow-out phase in clam aquaculture is conducted on intertidal and shallow sub-tidal mudflats, some of which also serve as foraging areas for migratory shorebirds. In a related study as part of the Seaside Heritage

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Program, Dr. Brian Watts will be developing GIS data layers depicting the spatial pattern of shorebird foraging on these flats and sedimentary signature based upon aerial images. Following the development of these data layers, we will conduct quantitative sampling of benthic invertebrates on (1) mudflats that are heavily used as foraging grounds by migratory birds, (2) mudflats of similar characteristics that are not heavily used by shorebirds and (3) mudflats with hard clam aquaculture. All invertebrates that represent potential prey species for birds will be identified and enumerated. Our goal is to develop an inventory of available prey species and abundances and relate that to the distribution of shorebirds and aquaculture operations.

A number of studies over the past decade have collected water quality data at various locations within the coastal bays. Unfortunately, these data are unconsolidated and fragmentary. In order to evaluate what we know about the status of water quality in the coastal bays and to identify important data gaps, we need to develop an inventory of existing data. Additionally, we need to synthesize these data, identify priority areas for future monitoring and establish a framework managing regional water data. This project will address each of these tasks.

**Extended Project Summary:**  
(if necessary)

**IV. Project Budget:**

	Federal	Match	Total	Budget Narrative
<u>Personnel</u>	\$23,911	\$7,183	<b>\$31,094</b>	See personnel worksheet below (May use Personnel worksheet at bottom of page)
<u>Fringe</u>	\$7,173	\$2,155	<b>\$9,328</b>	Institutional rate=30%
<u>Equipment</u> (≥\$5000)			<b>0</b>	
<u>Travel</u>	\$1,100	0	<b>\$1,100</b>	Local travel to field sites and to meet with user groups
<u>Supplies</u> (<\$5000)	\$750	0	<b>\$750</b>	Expendable supplies used in the collection, preservation and processing of benthic invertebrates
<u>Contractual</u>			<b>0</b>	
<u>Construction</u>			<b>0</b>	
<u>Other</u>	\$666	0	<b>\$666</b>	\$666 is requested for vessel use at institutionally-approved rates.
<b><u>Total Direct</u></b>	<b>\$33,600.00</b>	<b>\$9,338</b>	<b>\$42,939</b>	

<u>Indirect</u>	\$8,400	\$12,116	<b>\$20,516</b>	25% IDC charged, VIMS approved rate=47.78%, match includes the 22.78% of approved rate not charged
<b><u>TOTAL</u></b>	<b>\$42,000</b>	<b>\$21,454</b>	<b>\$63,455</b>	

### **Personnel Worksheet**

Personnel	Months	Federal	Match	Cost
Luckenbach	2	\$7,183	\$7,183	<b>\$14,367</b>
Arnold	2.75	\$8,000	0	<b>\$8,000</b>
Ross	3	\$8,728	0	<b>\$8,728</b>
				<b>\$0.00</b>
				<b>\$0.00</b>
				<b>\$0.00</b>
				<b>\$0.00</b>
				<b>\$0.00</b>
				<b>\$0.00</b>
<b>TOTAL</b>	<b>7.75</b>	<b>\$23,911</b>	<b>\$7,183</b>	<b>\$31,094</b>

*✓This personnel worksheet may be used to replace or to substantiate the Personnel Budget Narrative, but is not required provided the narrative section is used. (If you use this table, be certain that totals in this table match personnel totals in Budget Table!)*

### **V. Deliverables/Products:**

*✓Description of products should include the manner of achieving results as well as a description of the outcome. (2000 Character Limit on Product Descriptions).*

#### **Product #1:**

Title: Aquaculture/User Groups Workshops

Description: Two workshops will be held with aquaculturists and other user-groups to develop lists of issues and guidelines for producing BMP's

Product/Outcome Timeframe:      Start: January 2003  
End: December 2003

**Product #2:**

Title: Aquaculture BMP Handbook

Description: Production, printing and distribution of a BMP handbook for clam aquaculture in the coastal bays

Product/Outcome Timeframe:      Start: January 2003  
End: December 2003

**Product #3:**

Title: Prey Characterization

Description: A characterization of the composition, abundance and biomass of major prey items for migratory shorebirds will be produced for areas with and without shorebird foraging and with and without clam aquaculture.

Product/Outcome Timeframe:      Start: January 2003  
End: December 2003

**Product #4:**

Title: Water Quality Summary

Description: After compiling existing water quality data, it will be archived and displayed in the most appropriate manner (e.g., GIS data layers if spatial data are available).

Product/Outcome Timeframe:      Start: January 2003  
End: December 2003